

4.0 LOS ANGELES-INLAND EMPIRE-SAN DIEGO CORRIDOR

The initial analysis for the Los Angeles to San Diego via the Inland Empire Corridor was conducted for the following three:

- Los Angeles to March Air Reserve Base
- March ARB to Mira Mesa
- Mira Mesa to San Diego

The alignment and station location options within these segments are illustrated in Figure 4-1.

4.1 Los Angeles to March Air Reserve Base

4.1.1 Alignment and Station Location Options for Further Evaluation

Based on information obtained through the initial evaluation, the following alignment and station location options are recommended for further evaluation (see Figure 4-2):

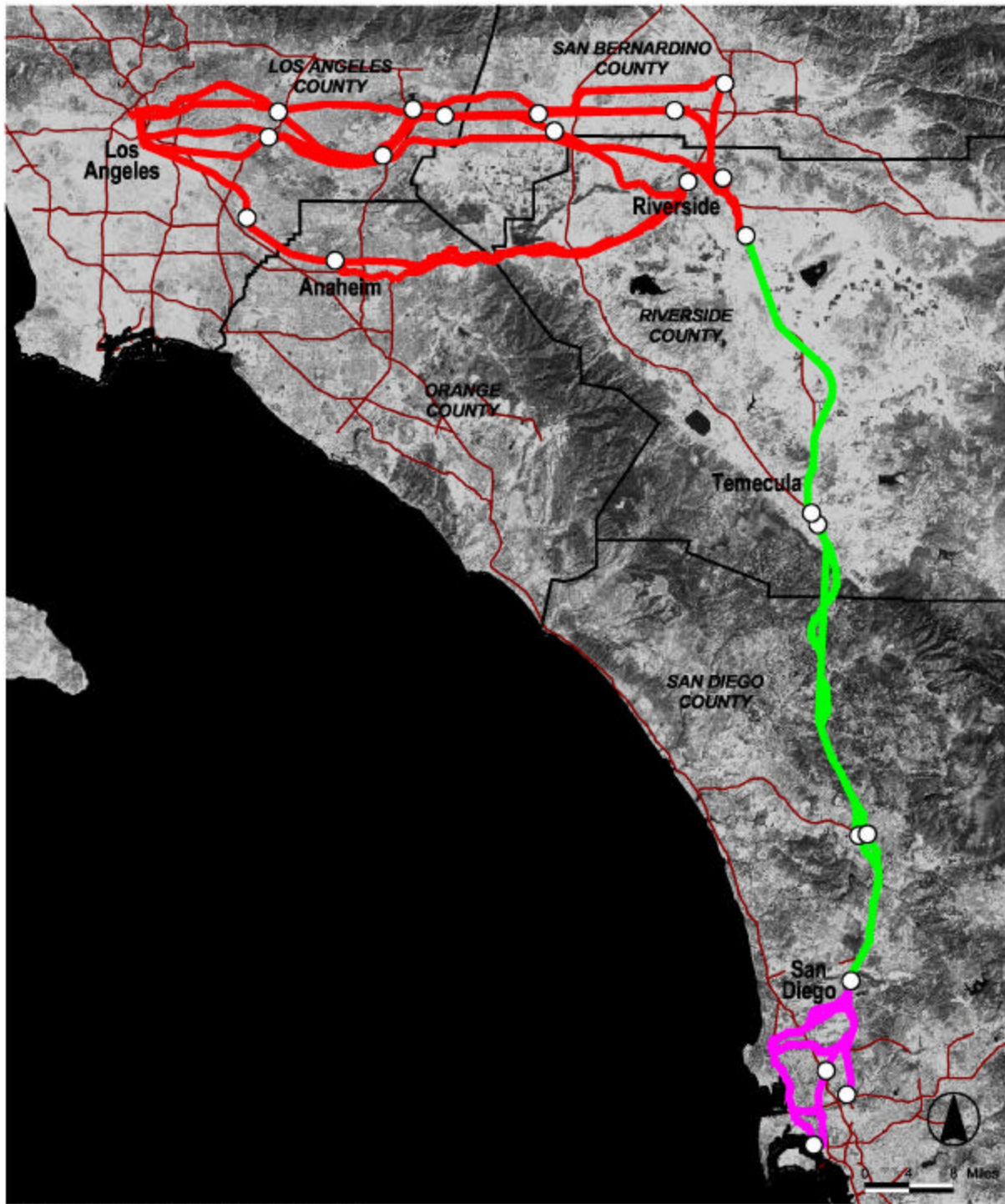
Alignments:

- **UP/Colton Line:** This alignment extends from LA Union Station, east along the UP/Colton line, turns south in Colton (near the I-215/I-10 interchange), on the BNSF-San Jacinto line, then follows I-215 south to March ARB. Station options along this alignment include LA Union Station, El Monte (west of I-605), Pomona (Metrolink Station), Ontario International Airport (north side), Colton Line (near San Bernardino), University of California Riverside and March ARB.

The UP/Colton Line alignment has high ridership potential and maximizes connectivity and accessibility while minimizing capital and operating costs. The UP/Colton Line creates less impact to existing rail freight operations than other rail alternatives. This alignment minimizes impacts on land use, and has good potential for intermodal connections. It also allows for a connection to both Riverside and San Bernardino with a potential station at Colton. The most negative element of this alignment is its connection to Los Angeles Union Station -- requiring a "stub end" or difficult curved track configuration connection. Although this alignment will require a significant amount of trenching and some aerial construction, the UP/Colton Line is the best alignment for extensive at-grade construction.

- **UP/Riverside - UP/Colton Line:** This alignment extends from LA Union Station, south and then east along the UP/Riverside Line, east along the UP/Colton line, turns south in Colton (near the I-215/I-10 interchange), on the BNSF-San Jacinto line, then follows I-215 south to March ARB. Station options along this alignment include LA Union Station, City of Industry (Metrolink Station), South El Monte (West of I-605), Pomona (Metrolink Station), Ontario International Airport (north side), Colton Line (near San Bernardino), University of California Riverside and March ARB.

The UP/Riverside – UP/Colton Line alignment would combine the best attributes of both the UP/Colton Line and the UP/Riverside Line. It would have the best connection to Los Angeles Union Station. It has high ridership potential, and maximizes connectivity and accessibility while minimizing capital and operating costs. This alignment reduces impacts on land use, and allows for a connection to both Riverside and San Bernardino with a potential station at Colton. The most negative element of this alignment is the heavy freight use on the UP/Riverside portion of the alignment. Although this alignment will require a significant amount of trenching and some aerial construction, the UP/Colton portion of this alignment offers the opportunity for extensive at-grade construction.



Legend

- Station Locations
- Los Angeles to March ARB Segment
- March ARB to Mira Mesa Segment
- Mira Mesa to San Diego Segment

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Los Angeles to San Diego Alignment Options

Figure 4-1

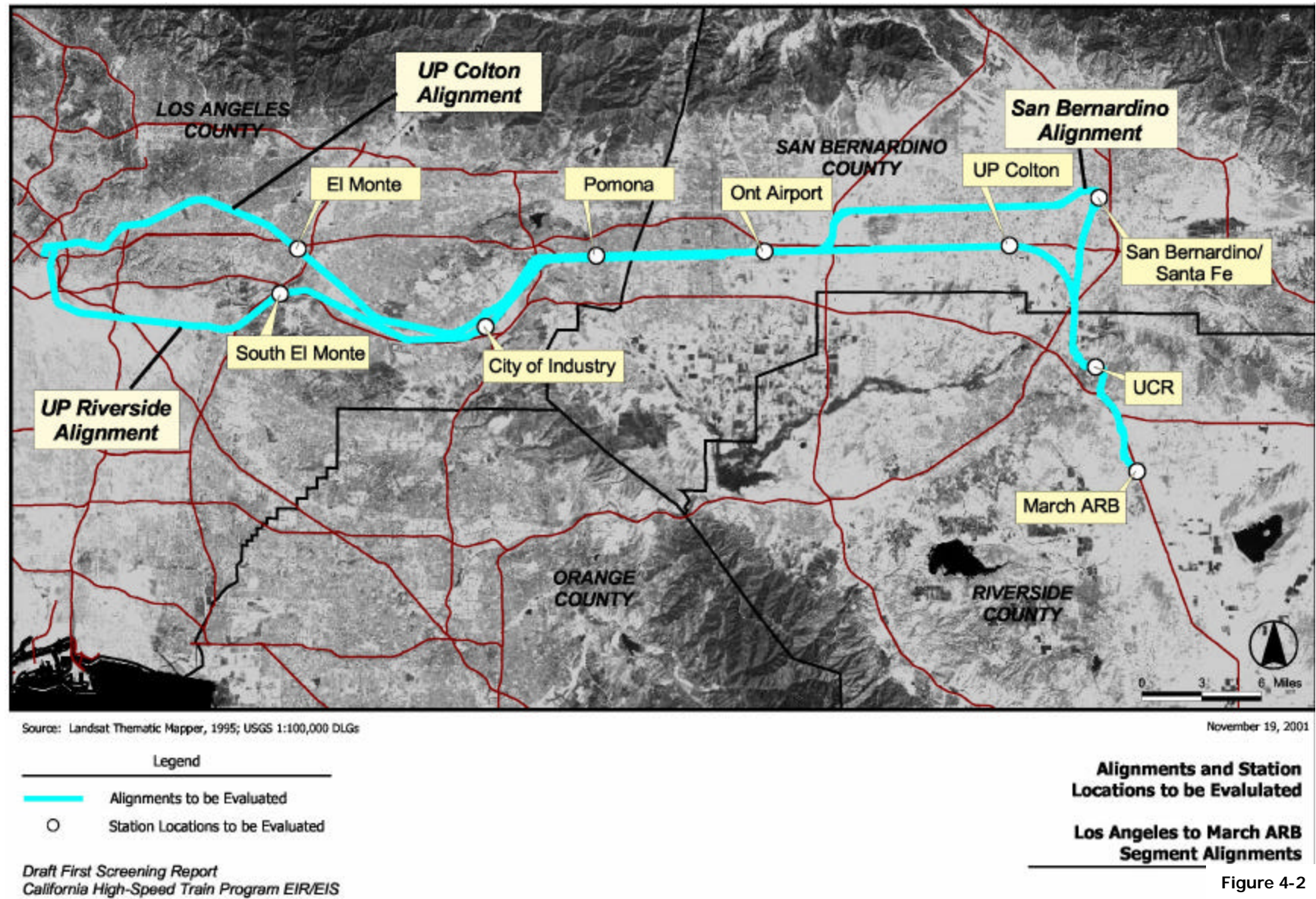


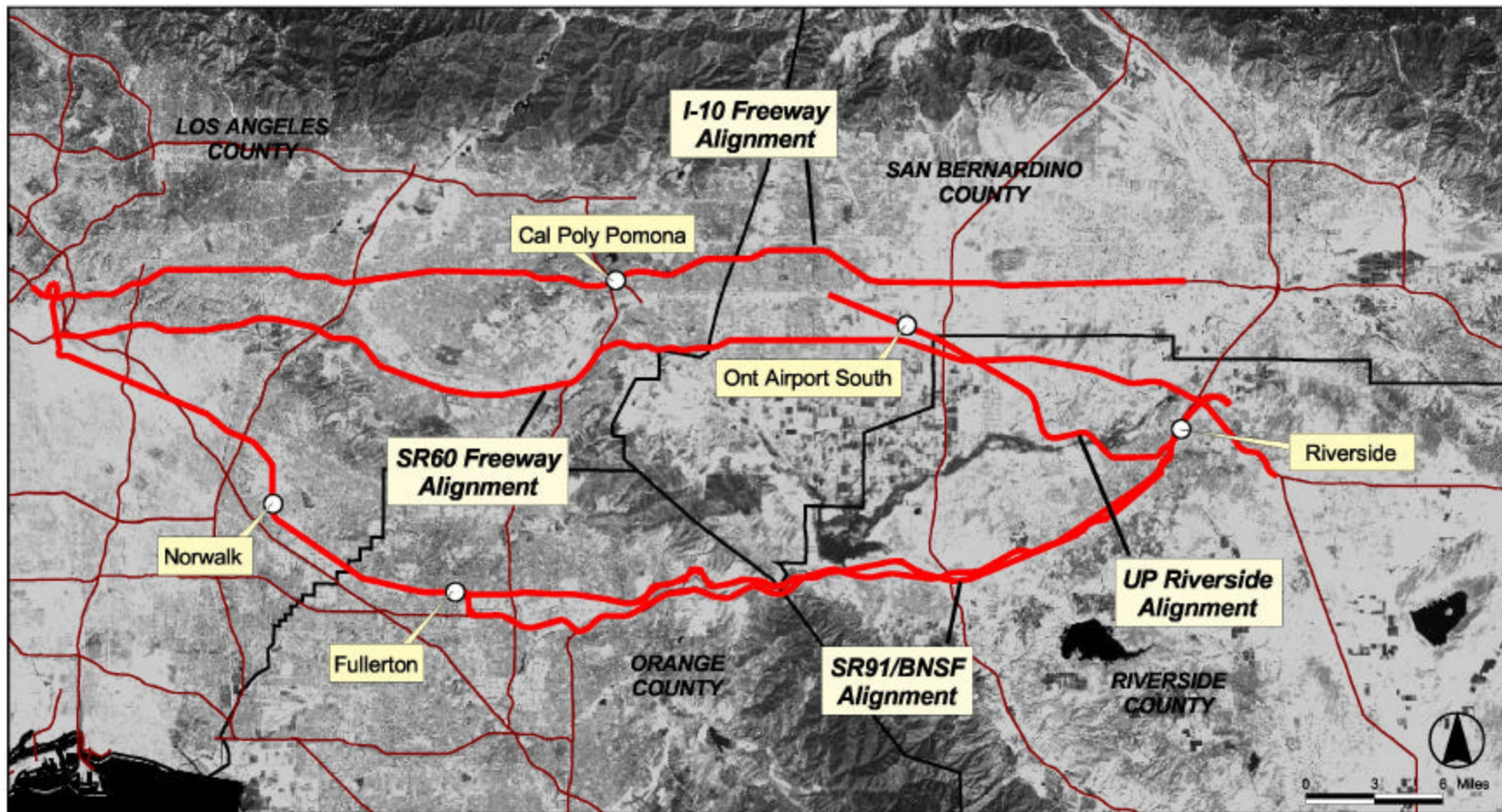
Figure 4-2

- **UP/Colton Line to San Bernardino:** This alignment uses either the UP/Colton Line or UP/Riverside – UP/Colton Line from LA Union Station, east to Ontario Airport. The alignment turns north in the City of Ontario past the airport, then east toward the Santa Fe Depot in San Bernardino, then south from the Depot to the BNSF-San Jacinto Line, then follows I-215 south to March ARB.

This alignment would have a direct connection to the Santa Fe Depot in the City of San Bernardino and therefore would more directly service San Bernardino County. However, there would be a travel time penalty for redirecting the alignment up from the UP/Colton rail line and around the Santa Fe Depot Metrolink station in the City of San Bernardino. A portion of the alignment may not follow an existing transportation corridor, therefore potentially causing many impacts to existing businesses and residences. The City of San Bernardino will work with the Authority to refine the current alignment and attempt to mitigate both the travel time penalty (by improving the curves) and any potential impacts to businesses and residences. This option is expected to have higher capital and operational costs, longer travel times, than the UP Colton and UP Riverside/UP Colton options. However, the ridership and revenue potential for this alternative should be further investigated.

Station Locations:

- **LA Union Station:** This potential station would serve both the UP/Colton Line and the UP/Riverside – UP/Colton Line.
- **El Monte (west of I-605):** This potential station would serve the UP/Colton Line.
- **South El Monte (west of I-605):** This potential station would serve the UP/Riverside - UP/Colton Line.
- **City of Industry (Metrolink Station):** This potential station would serve the UP/Riverside – UP/Colton Line
- **Pomona (Metrolink Station):** This potential station would serve both the UP/Colton Line and the UP/Riverside – UP/Colton Line.
- **Ontario International Airport - North Side:** This potential station would serve both the UP/Colton Line and the UP/Riverside – UP/Colton Line.
- **Colton Line (near San Bernardino):** This potential station would serve both the UP/Colton Line and the UP/Riverside – UP/Colton Line.
- **University of California Riverside:** This potential station would serve both the UP/Colton Line and the UP/Riverside – UP/Colton Line.
- **March Air Reserve Base:** This potential station would serve both the UP/Colton Line and the UP/Riverside – UP/Colton Line.
- **San Bernardino Santa Fe Depot:** This potential station site would serve the UP/Colton Line to San Bernardino alignment.



Source: Landsat Thematic Mapper, 1995; USGS 1:100,000 DLGs

November 19, 2001

Legend

- Alignments to be Eliminated
- Station Locations to be Eliminated

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**Alignments and Station
Locations to be Eliminated**

**Los Angeles to March ARB
Segment Alignments**

Figure 4-3

4.1.2 Alignment and Station Location Options to be Eliminated (No Further Evaluation)

Based on information obtained through the initial evaluation, the following alignment and station location options are recommended to be eliminated from further evaluation (see Figure 4-3):

Alignments:

- **UP/Riverside Line:** This alignment extends from LA Union Station along the UP/Riverside line, turns south in Riverside (near the I-215/SR 60 interchange) on the BNSF-San Jacinto Line, then follows I-215 south to March ARB.

The UP/Riverside Line would have the same connection to Los Angeles Union Station as the UP/Riverside-UP/Colton Line alternative. However, it would have a difficult curved track alignment connection through City of Riverside that would create the most community and environmental impacts for Riverside. It also has a less direct access to Ontario Airport with the station on the south. In comparison with the UP/Riverside – UP/Colton alternative, the UP Riverside option has longer travel times, less ridership potential, more impacts through Riverside, and does not offer the opportunity for a connection to San Bernardino.

- **I-10 Freeway Alignment:** This alignment extends from LA Union Station, following east along I-10 to I-215 and proceeds south to March ARB.

This alignment would have several positive attributes including high ridership, low impact to existing rail freight operations, good intermodal connections, and access to Ontario Airport with station at the north side. It also allows for a connection to San Bernardino County with a potential station at Colton. It would have the negative attributes of a “stub end” or difficult curved track configuration connection to Los Angeles Union Station. This freeway alignment, would have the added constraint of limited right-of-way on the freeway, which would require the exclusive use of aerial construction, with many sections of multilevel structures required to pass over existing overpasses and connector ramps – resulting in higher costs than rail corridor alternatives. This freeway alignment would also require relocating and maintaining freeway access and capacity during construction. It is particularly difficult to find available space along the freeway alignments since available right-of-way is planned for use for needed expansion projects such as additional lanes, high-occupancy vehicle (HOV) lanes and additional interchange improvements. In general, the rail corridors have existing uses that are typically abutting less sensitive industrial and commercial uses that are more compatible with the high-speed trains than are freeway corridors. The I-10 Freeway corridor had a higher incidence of land use conflicts such as local and regional parks, schools, courthouses, hospitals, universities, and cemeteries.

- **SR 60 Freeway Alignment:** This alignment extends from LA Union Station along SR 60 to I-215 and proceeds south to March ARB.

This alignment would have high ridership potential and provides a good connection to Los Angeles Union Station from the south end. Like the I-10 alignment, the SR-60 freeway alignment would have the constraint of limited right-of-way on the freeway, which would require the exclusive use of aerial construction, with many sections of multilevel structures required to pass over existing overpasses and connector ramps – resulting in higher costs than rail corridor alternatives. This freeway alignment would also require relocating and maintaining freeway access and capacity during construction. It is particularly difficult to find available space along the freeway alignments since available right-of-way is planned for use for needed expansion projects such as additional lanes, high-occupancy vehicle (HOV) lanes and additional interchange improvements. Compared with the rail alternatives, the SR 60 has more incompatibility with land uses. The rail corridors have existing uses that are typically abutting less

sensitive industrial and commercial uses that are more compatible with the high-speed trains than are freeway corridors.

- **BNSF Fullerton Line/SR 91:** This alignment extends from LA Union Station along the BNSF Fullerton Line to Fullerton, then follows east along SR 91 to I-215 and proceeds south to March ARB. A variation is an alignment that follows just the BNSF rail corridor.

There are two variations on this alignment. One follows the BNSF from L.A. Union Station to the City of Riverside and the other follows the BNSF until Fullerton, where it connects to SR 91 and thereafter follows SR 91 to the City of Riverside. The alignment on SR 91 has the constraint of limited right-of-way on that freeway. The BNSF rail option would also have limited right-of-way, as this is the rail corridor that currently serves Metrolink, LOSSAN and freight service. The BNSF Fullerton Line/SR 91 options result in the highest level of environmental impacts. Both variations of this alignment option would traverse the Santa Ana Canyon, which is heavily constrained with existing rail and highway facilities and is a very environmentally sensitive area. The travel times for these options are significantly greater (up to nearly 24 minutes) than the other alignments in the Los Angeles to March Air Reserve Base segment resulting in the least ridership potential and highest operating costs.

Station Locations:

- **Ontario International Airport – South Side:** This potential station site would only serve the UP/Riverside Line alignment that staff recommends be eliminated from further investigation
- **Downtown Riverside:** This potential station site would only serve the UP/Riverside Line alignment that staff recommends be eliminated from further investigation.
- **Norwalk Metrolink Station:** This potential station site would only serve the BNSF Fullerton Line/SR 91 alignment options that staff recommends be eliminated from further investigation (note: this site is recommended as a potential station location for the Los Angeles-Orange County-San Diego Corridor).
- **Fullerton Transportation Center:** This potential station site would only serve the BNSF Fullerton Line/SR 91 alignment options that staff recommends be eliminated from further investigation.

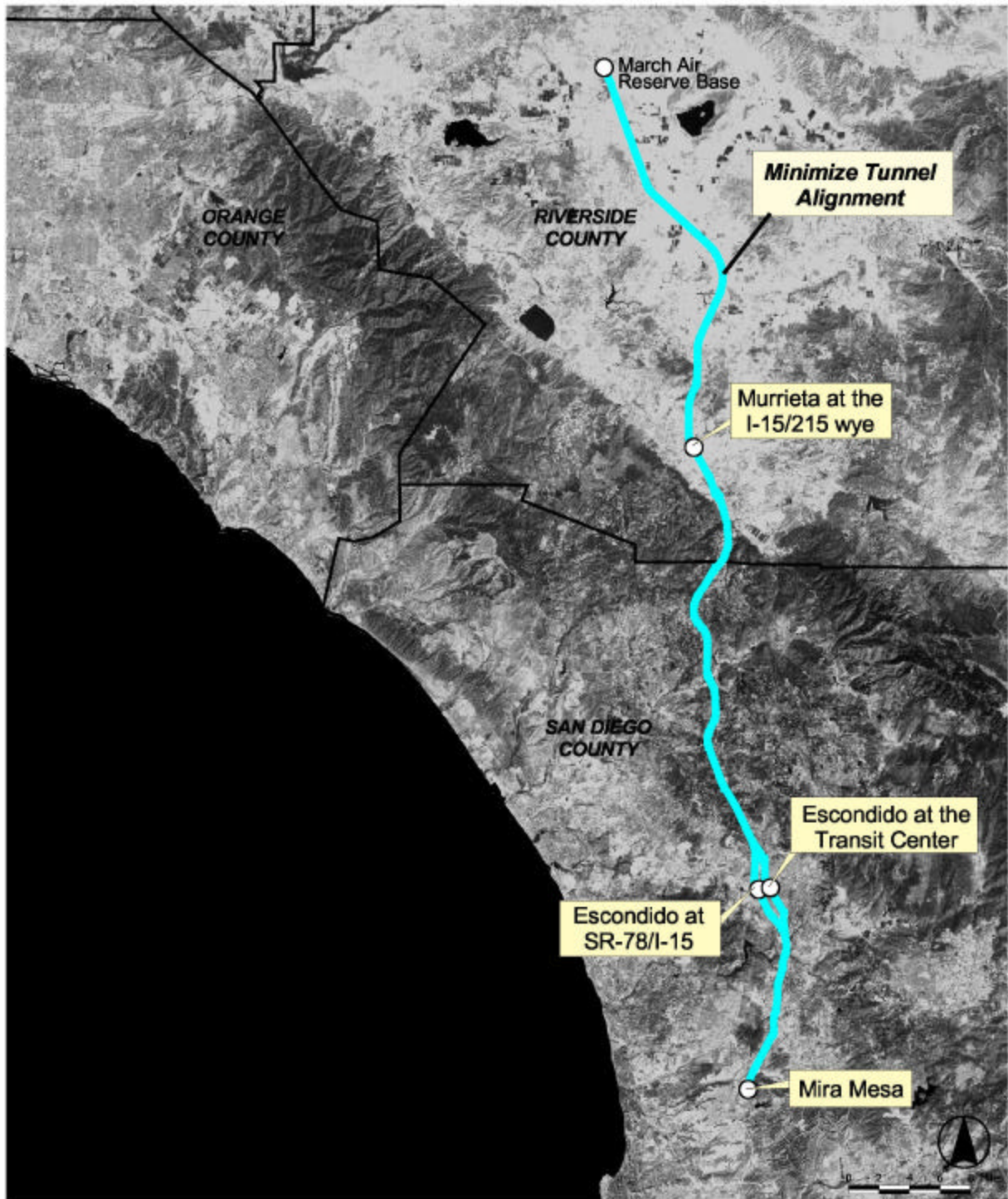
4.2 March Air Reserve Base to Mira Mesa

4.2.1 Alignment and Station Location Options for Further Evaluation

Based on information obtained through the initial evaluation, the following alignment and station location options are recommended for further evaluation (see Figure 4-4):

Alignment:

- **San Jacinto to I-15 Alignment – “Minimizing Tunnels” option** – This alignment extends from Riverside to Mira Mesa in San Diego County, running along the BNSF San Jacinto Line, along I-215 past March ARB through Murrieta and Temecula and south along I-15 to Escondido, staying within the freeway corridor with minimal tunneling. Station options along this alignment include Murrieta at I-15/I-215 Interchange, Escondido at SR-78/I-15 Interchange, Escondido Transit Center and Mira Mesa.



Source: Landsat Thematic Mapper, 1995; USGS 1:100,000 DLGs

September 4, 2001

Legend

- Alignments to be Evaluated
- Station Locations to be Evaluated

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**Alignments and Station
Locations to be Evaluated**

**March ARB to Mira Mesa
Segment Alignments**

Figure 4-4

The “Minimizing Tunnels” option of the I-15 alignment provides the same ridership potential for a substantially reduced cost (over \$1 billion) than the “Maximizing Tunnels” alternative. Although there would be more environmental impacts for the shorter tunnel configuration, there would be greater construction impacts while constructing the longer tunnel alternative. During the subsequent preliminary engineering phase of this program, the “Minimizing Tunnels” option will be refined in order to minimize capital and operational costs and at the same time reduce potential environmental impacts.

Between March Air Reserve Base to Mira Mesa there are no rail corridors and the I-215 to I-15 alignment is the only viable transportation corridor as a potential high-speed train alignment. Much of the corridor is undeveloped terrain and a significant portion of the alignment can be constructed at-grade.

Station Locations:

- **Murrieta at I-15/I-215 Interchange:** This potential station would serve the San Jacinto to I-15 Alignment – “Minimizing Tunnels” option.
- **Escondido at SR-78/I-15 Interchange:** This potential station would serve the San Jacinto to I-15 Alignment – “Minimizing Tunnels” option.
- **Escondido Transit Center and Mira Mesa:** This potential station would serve the San Jacinto to I-15 Alignment – “Minimizing Tunnels” option.

4.2.2 Alignment and Station Location Options to be Eliminated (No Further Evaluation)

Based on information obtained through the initial evaluation, the following alignment and station location options are recommended to be eliminated from further evaluation (see Figure 4-5):

Alignment:

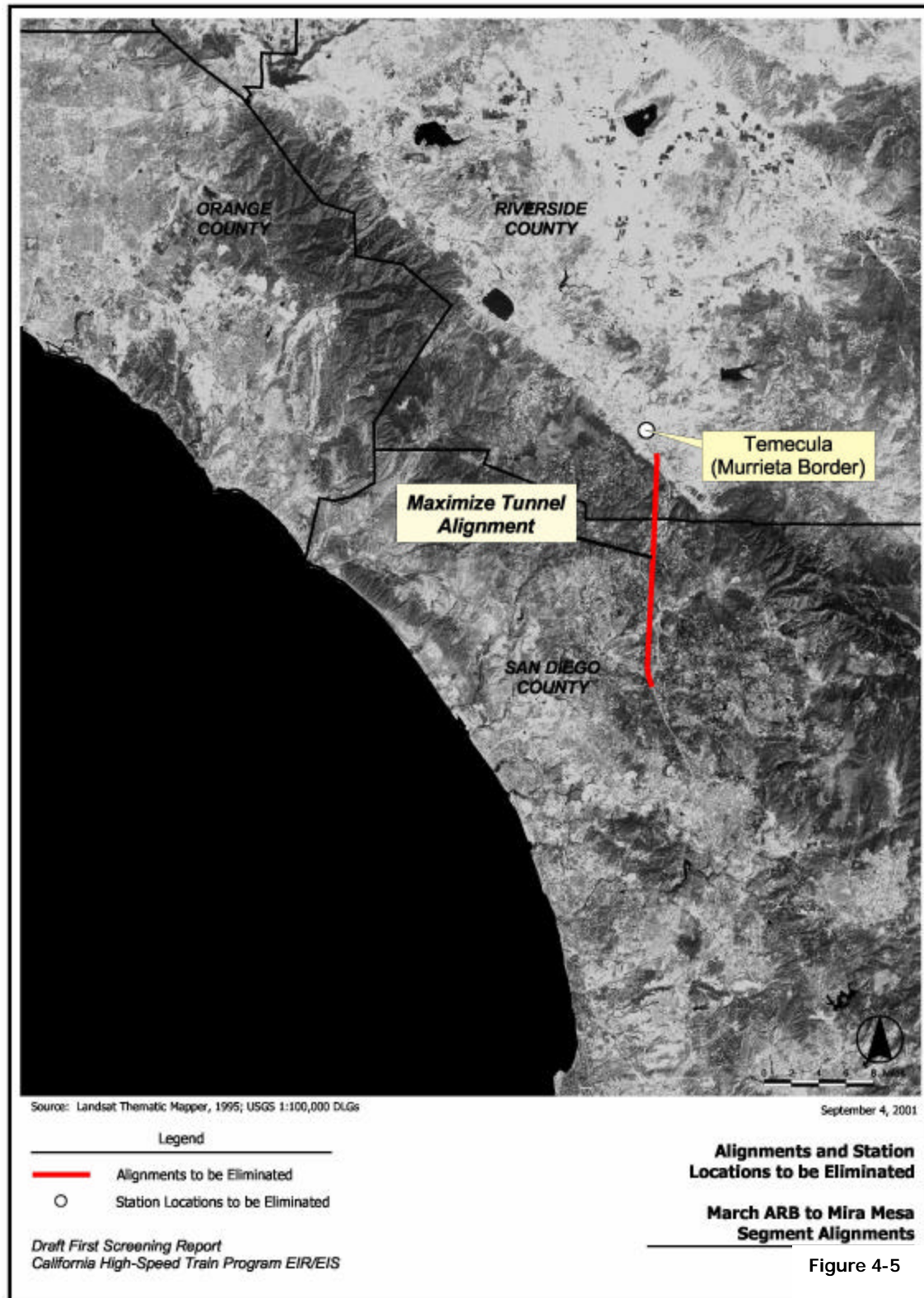
- **San Jacinto to I-15 Alignment – “Maximize Tunnels” option:** This alignment extends from Riverside to Mira Mesa in San Diego County, running along the BNSF San Jacinto Line, along I-215 past March ARB through Murrieta and Temecula and south along I-15 to Escondido, tunneling on either side of the freeway, as necessary, to straighten the alignment to increase speed and avoid sensitive environmental areas.

The concept of “maximizing” tunneling in order to reduce travel times should be eliminated in this corridor. This alignment, designed to pick up speed once outside of the dense urban area of Los Angeles to Riverside, would result in a negligible difference in travel time as compared to the “Minimize Tunnels” option (about 20 seconds). While only producing a slight decrease in travel time, the longer tunnels for this option significantly increase capital cost – over \$1.0 billion more as compared to the “Minimize Tunnels” option. Although there would be fewer environmental impacts for the longer tunnel configuration, there would be greater construction impacts while constructing the tunnels.

Station Locations:

- **Temecula/Murrieta Border (the I-15 near Winchester Interchange) Station Location**

Of the two station options between Temecula and Murietta, the Murrieta, at I-15 and I-215 Interchange option would have the best intermodal connections and least negative impacts on the environmentally sensitive areas of Temecula. The second station option, Temecula-Murrieta Border, near Winchester Interchange option, would have fewer current and future opportunities for development and intermodal access and more environmental impacts. Both the City of Temecula and the City of Murrieta support the Murrieta at I-15/I-215 Interchange station site.



4.3 Mira Mesa to San Diego

4.3.1 Alignment and Station Location Options for Further Evaluation

Based on information obtained through the initial evaluation, the following alignment and station location options are recommended for further evaluation (see Figure 4-6):

Alignments:

- **I-15 to Coast via Miramar Road:** This alignment extends south along I-15 from Mira Mesa then west along Miramar Road to connect to LOSSAN Corridor at University Town Centre (UTC). The alignment would then continue on the LOSSAN corridor, or other high-speed train alignment option, to the Santa Fe Depot in Downtown San Diego. Station options include the University Town Centre, the San Diego Airport and Downtown San Diego at the Santa Fe Depot.

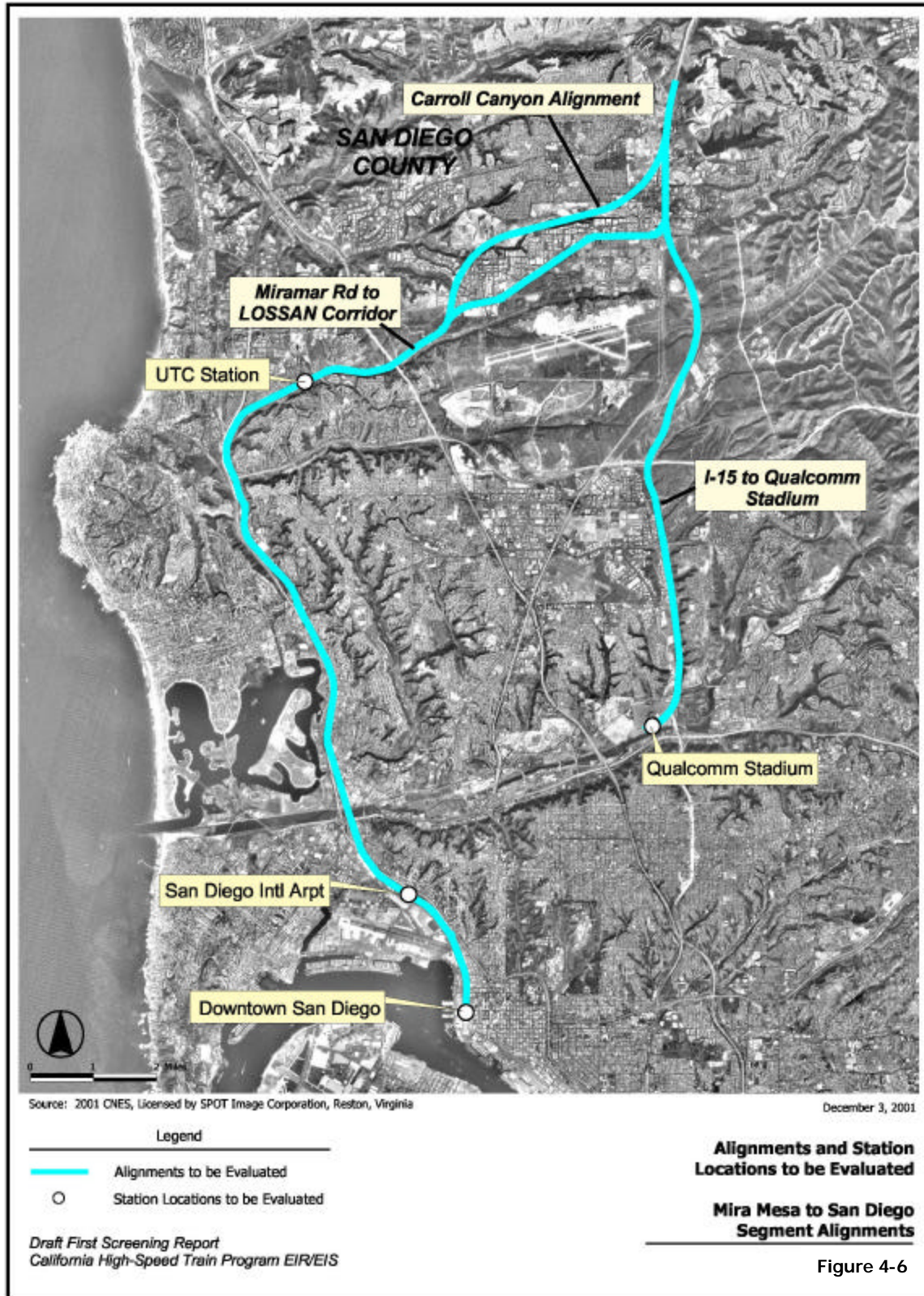
Although there would be significant curves that would reduce the average speed to 92-mph (148 kmph), and this alignment option would negatively impact the northern border of Marine Corps Air Station (MCAS) Miramar, this alignment option has the most direct connection to UTC high-speed train station option and to the LOSSAN Corridor. The region has supported continued investigation of a direct link from the I-15 to downtown San Diego. The Miramar Road option is a feasible route option to link the I-15 corridor to the LOSSAN Corridor and both the potential downtown San Diego high-speed station sites (Santa Fe Depot or San Diego Airport).

- **I-15 to Coast via Carroll Canyon:** This alignment extends south along I-15 from Mira Mesa then west through Carroll Canyon to connect to LOSSAN Corridor. The alignment would then continue on the LOSSAN corridor or other high-speed train alignment option (see discussion in section 4.4) to Downtown San Diego.

This alignment would avoid the northern end of the MCAS Miramar and connect, via Miramar Road, to University Town Centre (UTC) shopping center in University City and the LOSSAN Corridor. There would be some environmental and residential impacts in this canyon, with difficult terrain and significant alignment curves that would reduce the average speed to 91-mph /146.5 kmph. However, since most of the canyon has been severely disturbed by aggregate mining, environmental impacts for much of the distance between the I-15 and Coastal rail corridor could be minimized.

- **I-15 to Qualcomm Stadium:** This alignment extends south along I-15 from Mira Mesa to Qualcomm Stadium in East Mission Valley. Station option includes the Qualcomm Stadium.

This option, as initially conceived, would not provide direct access to the San Diego Airport or Downtown San Diego Santa Fe Depot, but would have the fewest alignment curves and fastest average speed of 153 mph/246.3 kmph. It also would have the shortest length (about 10 miles/16.1 km), the shortest travel times (4.2 minutes) and the lowest cost. This line would stop at the Qualcomm Stadium and would require a transfer to the San Diego Trolley to reach Downtown San Diego. Including the time of transfer and local commute, this alternative would have the longest overall travel time to the San Diego Airport or Downtown San Diego Santa Fe Depot of the alternatives studied thus far. As requested by SANDAG, MTDB and NCTD, additional evaluation will include the investigation of alternatives that extend this alternative to directly serve the San Diego Airport and Downtown San Diego.



Station Locations:

- **University Town Centre:** This potential station would serve the I-15 to Coast via Miramar Road alignment.
- **Qualcom Stadium:** This potential station would serve the I-15 alignment.
- **San Diego Airport:** This potential station would serve the I-15 to Coast via Miramar Road alignment.
- **Downtown San Diego at the Santa Fe Depot:** This potential station would serve the I-15 to Coast via Miramar Road alignment and may be able to serve the I-15 to Qualcomm then to downtown alignment.

4.3.2 Alignment and Station Location Options to be Eliminated (No Further Evaluation)

Based on information obtained through the initial evaluation, the following alignment and station location options are recommended to be eliminated from further evaluation (see Figure 4-7):

Alignments:

- **I-15 to SR-163 to Downtown San Diego:** This alignment extends south along I-15 from Mira Mesa then along the east side of I-15, then south along SR-163, tunneling under Balboa Park to the Santa Fe Depot in Downtown San Diego.

This option would connect directly to the Santa Fe Station in Downtown San Diego. It has the second fastest travel time, with fewer alignment curves and an average speed of 141 mph/227 kmph. In addition, there would be a good connection to the potential station at Kearney Mesa, a planned intermodal hub for San Diego County that would serve the San Diego Trolley, bus and freeway connections. This option also provides potential to continue south to Mexico for a future extension of the high-speed train system – which the region has requested be investigated. However, this option would have major construction issues with the requirement of tunneling under Balboa Park, and Downtown San Diego, and this is the most costly alignment option. This alternative would require a 1.5 mile long twin bore tunnel under the sensitive recreational and cultural resources of Balboa Park and an additional 1.5 miles of tunneling in the heavily developed urban landscape of downtown San Diego. It would also cross about 2.5 miles (4.03 km) of MCAS Miramar on the east, with the potential for land use conflicts with the base. SANDAG, MTDB and NCTD have all submitted formal comment to the Authority requesting that this alternative be eliminated from further investigation.

- **I-15 to Coast via SR-52:** This alignment extends south along I-15 from Mira Mesa then along the east side of I-15, then west along SR-52 to connect to LOSSAN Corridor south of the University Town Centre (UTC). The alignment would then continue on the LOSSAN corridor, or other high-speed train alignment option (see discussion in section 4.4) to the Santa Fe Depot in Downtown San Diego.

The I-15 to Coast via SR-52 is the longest alignment between Mira Mesa and San Diego. This option would connect to the LOSSAN Corridor and to a potential high-speed train connection to UTC on the south end of the area. However, there would be significant curves in the alignment that would reduce the average speed to 106-mph/170.7 kmph. In addition, there would be a constrained ROW in this densely developed area. This option would also cross about 5 miles/8.1 km of MCAS Miramar with a potential for land use conflicts with the base. In addition to crossing Marine Corps Air Station (MCAS) Miramar, a high school, and residential areas, this option also crosses Marion Bear Park along SR-52, where approval of nonpark uses requires a two-thirds vote of the people. The South of UTC station site

for this alternative would have less intermodal connectivity than the UTC station site for the Miramar Road alternative.

- **I-15 to SR-163 to I-8 to Coast:** This alignment extends south along I-15 from Mira Mesa then along the east side of I-15, then south along SR-163, then west along I-8 to connect to LOSSAN Corridor. The alignment would then continue on the LOSSAN corridor, or other high-speed train alignment option (see discussion in section 4.4) to the Santa Fe Depot in Downtown San Diego.

As compared to the I-15 to SR-163 option, this alignment has more constrained ROW in this densely developed area. It also creates more land-use impacts and is less compatible with existing and planned development than the I-15 to SR-163 option. It creates no significant benefit over the I-15 to S-163 option in terms of travel time or cost.

Station Locations:

- **Kearny Mesa:** This potential station would only serve the I-15 to SR-163 alignment that is not recommended for further evaluation.
- **South of UTC option:** This potential station site would only serve the I-15 to Coast via SR-52 alignment that staff recommends be eliminated from further investigation.

